GOAL Team

Graphs, AlgOrithms and AppLications

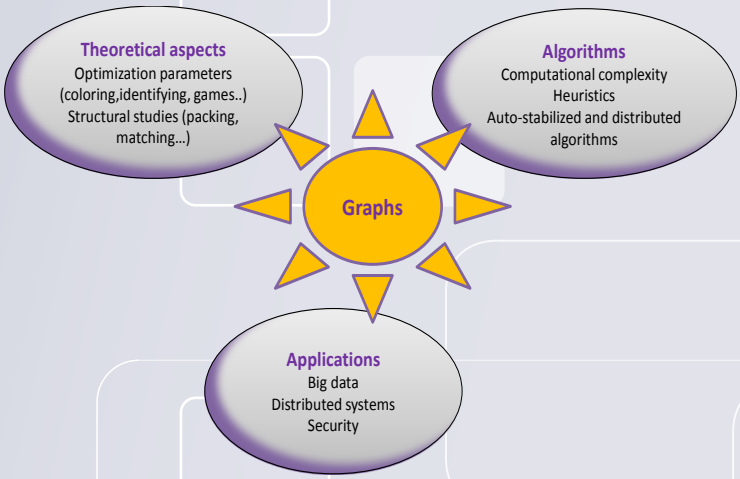
Laboratoire d'InfoRmatique en Image et Systèmes d'information

LIRIS UMR 5205 CNRS / INSA de Lyon / Université Claude Bernard Lyon 1 / Université Lumière Lyon 2 / Ecole Centrale de Lyon

The GOAL team focuses its research on graphs, and more precisely on the combinatorial and algorithmic aspects. Its fundamental research concerns the study of graph structures and graph optimization parameters. The computational complexity of graph parameters is also considered, as well as the research of efficient algorithms to estimate their values. Such algorithms may be developed in a sequential, distributed, auto-stabilized or dynamic context.

In addition, the GOAL team is interested in the applications of graph theory in various areas, such as big data, Web, distributed systems or security.

The originality of the team relies on his expertise in both theoretical and applied aspects of graphs. The group is mainly concerned by the application of its fundamental research in significant fields, or conversely, by building and solving new theoretical problems derived from concrete industrial issues.



The team

Members

1 Professor

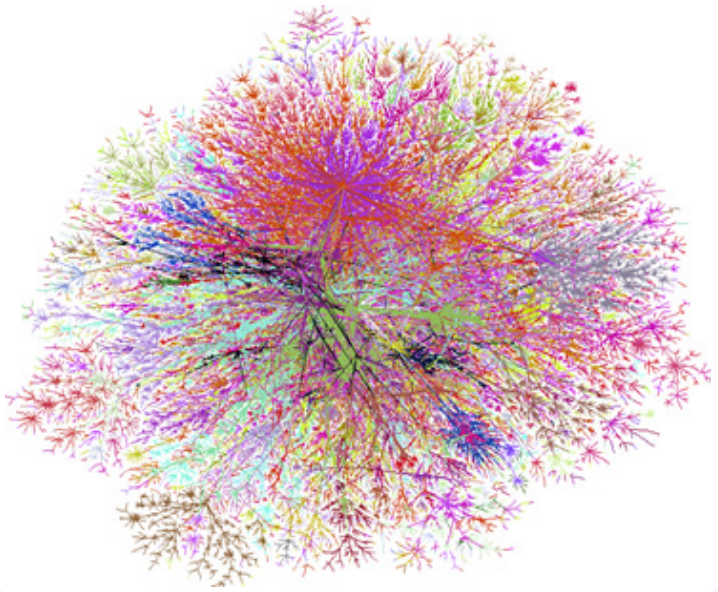
1 CNRS researcher

5 Associate Professors (incl 1 half-time member)

5 PhD students

Defended PhD Thesis

1 or 2 per year in average



Scientific skills and societal challenges

Scientific skills

- Algorithms on graphs
- Distributed and/or self-stabilizing algorithms
- Graph parameters studies (graph coloring, graph identification, combinatorial games, etc.)
  - Graph optimization and modeling
  - Structural studies (graph decomposition, graph matching, graph packing, etc.)

Societal challenges

- Big data
- Social networks
- Autonomous and distributed systems
- Web

Contacts

Coordinator

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Positioning

International context

- Head/Member of international exchange projects (USA-French PUF project, German-French PHC Procope…)
- Steering and program committees (ICSOC, INCoS…)
- International workshop organizations (G-COM, GAOC…)
- Guest speaker (USA, Australia, Ireland, Belgium…)
- Expertise of international projects (H2020, FP7, Germany, Canada, Chile)
- Participation in international projects (PUF, P2GE, COST…)

National context

- Involvement in French workgroups: GDR MaDOCS, IM, ASR
- National conference and workshop organizations (JGA, JFGW…)
- Leadership of national program committees (JGA, JFGW…)
- Expertise of national projects (AERES, ANR, ARC, CIFRE…)
- Head/Member of the following national projects: ANR CAIR, ANR AOC, ANR CEDAR, ANR GAG, MASTODONS, PEPS CNRS.

Regional context

- IMU, IXXI, LUTB projects
- Head of the Lyon team "Maths à Modeler" for scientific popularization

Industrial partnerships

- Quarness, Itron, Lizéo, Vétoquinol

International relationships

- Algeria, Australia, Austria, Belgium, Canada, England, Finland, Germany, Ireland, Lebanon, Spain, Sweden, USA

Highlights

- Hiring of a CNRS researcher in 2014, September.
- Two ANR projects starting in 2015 (including a JCJC project promoted by a GOAL member)
- Head of a European interregional project P2GE 2012 - 2014 (with AGH University –Poland and ULM University - Germany)
- Large improvement (50%) of the publication ratio in top-level journals in 2012-2014

Softwares and platforms

- "Algorithms on graphs" platform 2013-2014
- "Analyzing big data graphs" platform 2013 – 2014
- "Web documents (XML, RDF...) matching" platform (ANR AOC project) 2012-2013

International journals and conferences

- Computer Networks
- Discrete Mathematics
- Discrete Applied Mathematics
- Graphs and Combinatorics
- Journal of Graph Theory
- Theoretical Computer Science
- Conferences: SCC, SSS…